



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,118	07/24/2003	Kiyoshi Yoneda	YKI-0133	3918
23413	7590	05/25/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,118

Applicant(s)

YONEDA ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendment, filed on March 21, 2006 has been entered and acknowledged by the Examiner.

New claims 13-16 have been entered.

Acknowledgement is made of receipt of the Certified English translation of the priority document, JP 2002-216663 with a filing date of July 25, 2002.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,614,174 to Urabe et al., and further in view of U.S. Patent 6,246,179 to Yamada.

Regarding claim 7 Urabe discloses (Fig. 1 column 4 lines 39-60, column 6 lines 18-46) a method of manufacturing an organic EL panel in which organic EL elements are arranged in a matrix (see Fig. 3) each organic EL element comprising at least an organic emissive layer 10, disposed between a pixel electrode A and an opposing electrode K, wherein each pixel electrode has a size corresponding to emissive region of one pixel and wherein each opposing electrode is opposed to each pixel electrode

and corresponds to plurality of pixels. Urabe discloses the manufacturing method comprising forming the pixel electrodes A, forming insulating films 15 wherein each insulating film 15 has a form of frame covering the peripheral edges of the pixel electrodes, forming protrusions (barrier films) 6 wherein each protrusion has a thickness greater than that of the insulating around which the protrusion surrounds and forming the organic emissive layer composed of laminated films piled up while the protrusions are supporting a mask 5.

Urabe is silent about forming the hole transporting layer formed over the entire area of both the insulating films and the pixel electrodes.

Yamada in same field of endeavor discloses (Fig. 4B column 7 lines 27-48) organic EL element 60 is formed by forming pixel electrode (anode) 61 (peripheral edges covered by insulating films 19), the emissive element layer comprising hole transport layer 62, emissive layer 64 in form of discrete islands and opposing electrode (cathode) wherein the hole transport layer is formed over the entire area of the insulating films 19. It is noted that this configuration of hole transporting layer formed over the entire area of insulating films provides good contact with the pixel electrode underneath while forming light emitting layers of different colors in island form on top so that different pixels can emit different colors. Furthermore this provides simpler manufacturing of the organic EL element by forming hole transporting layer formed over the entire area by evaporation method and eliminating use of separate masks.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to form the hole transporting layer over the entire area of the insulating films

and pixel electrodes of Urabe as taught by Yamada for providing good contact of the hole transporting layer with the pixel electrode underneath while forming light emitting layers of different colors in island form on top so that different pixels can emit different colors and providing simpler method of manufacturing organic EL element with hole transporting layer formed over the entire area by evaporation method and eliminating use of separate masks.

Regarding claims 13 and 14 Urabe discloses in Fig. 3 the protrusions (barrier film) 6 comprising continuous line shape extending through the pixels.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,614,174 to Urabe et al., U.S. Patent 6,246,179 to Yamada and further in view of Duineveld et al. (US 6,891,327).

Referring to claim 8 Urabe and Yamada disclose the insulating film and the protrusions made of the same material but do not disclose the limitation of the insulating layer and the protrusions being formed by a two-step exposure, exposing the insulating films to a first exposure of light to form a thickness of the insulating films and exposing the insulating films to a second exposure of light, wherein areas of the insulating film forming the protrusions are not exposed to both the first exposure of light and the second exposure of light; and removing portions of the insulating films exposed to the first exposure of light and the second exposure of light.

However, Duineveld in pertinent art discloses a method of forming neighboring insulating layers or protrusions, and teaches the suitability of a two-step exposure

Art Unit: 2879

wherein the neighboring structures are made of a same material and then patterned, to reduce the numbers of steps in the formation of the device (see at least Col. 1 7, lines 10- 14).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the two step exposure steps of Duineveld in the method of Urabe and Yamada, with the purpose of patterning different neighboring structures from a same material, in a reduced number of steps.

Regarding claim 9 Urabe and Yamada disclose the insulating film and the protrusions made of the same material but do not disclose the limitation of the insulating layer and the protrusions being formed by a gray tone mask exposure.

Duineveld in pertinent art discloses a method of forming neighboring insulating layers or protrusions, and teaches the suitability of gray tone mask exposure wherein the neighboring structures are made of a same material and then patterned, to reduce the numbers of steps in the formation of the device (see at least Col. 1 7, lines 10- 14).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gray tone mask exposure step of Duineveld in the method of Urabe and Yamada, with the purpose of patterning different neighboring structures from a same material, in a reduced number of steps.

Claims 10, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,614,174 to Urabe et al., U.S. Patent 6,246,179 to Yamada and further in view of U.S. Patent 5,937,272 to Tang.

Referring to claim 10 Urabe and Yamada disclose all the limitations same as of claim 7 except for the limitations of forming the organic emissive layer by the protrusions supporting a donor sheet of organic emissive material, the organic emissive material being released by laser irradiation.

However in the same field of endeavor tang discloses a method of manufacturing an organic EL device, wherein a donor sheet of organic emissive material is supported by protrusions, said organic emissive material being released by laser irradiation (see at least Figs. 4-6). Tang teaches this process to provide a high definition organic EL layer with excellent utilization of the organic material and excellent uniformity of the deposited layers (see at least Col. 2, lines 25-32).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the emissive layer by the method disclosed by Tang, in order to produce a high definition organic EL device with excellent uniformity of the deposited layers, while having excellent utilization of the organic material, which reduces manufacturing costs.

Regarding claims 15 and 16 Urabe discloses (Fig. 3) the protrusions 6 comprising continuous line shape extending through the pixels.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,614,174 to Urabe et al., U.S. Patent 6,246,179 to Yamada and U.S. Patent 5,937,272 to Tang and further in view of Duineveld et al. (US 6,891,327).

Referring to claim 11 Urabe, Yamada and Tang disclose the insulating film and the protrusions made of the same material but do not disclose the limitation of the insulating layer and the protrusions being formed by a two-step exposure, exposing the insulating films to a first exposure of light to form a thickness of the insulating films and exposing the insulating films to a second exposure of light, wherein areas of the insulating film forming the protrusions are not exposed to both the first exposure of light and the second exposure of light; and removing portions of the insulating films exposed to the first exposure of light and the second exposure of light.

However, Duineveld in pertinent art discloses a method of forming neighboring insulating layers or protrusions, and teaches the suitability of a two-step exposure wherein the neighboring structures are made of a same material and then patterned, to reduce the numbers of steps in the formation of the device (see at least Col. 17, lines 10- 14).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the two step exposure steps of Duineveld in the method of Urabe, Yamada and Tang, with the purpose of patterning different neighboring structures from a same material, in a reduced number of steps.

Regarding claim 12 Urabe, Yamada and Tang disclose the insulating film and the protrusions made of the same material but do not disclose the limitation of the insulating layer and the protrusions being formed by a gray tone mask exposure.

Duineveld in pertinent art discloses a method of forming neighboring insulating layers or protrusions, and teaches the suitability of gray tone mask exposure wherein the neighboring structures are made of a same material and then patterned, to reduce the numbers of steps in the formation of the device (see at least Col. 17, lines 10- 14).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gray tone mask exposure step of Duineveld in the method of Urabe, Yamada and Tang, with the purpose of patterning different neighboring structures from a same material, in a reduced number of steps.

Response to Arguments

Applicant's arguments with respect to claims 7 and 10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication 2002/0093286 to Ohshita et al. discloses method of forming organic EL display by forming insulating film around the periphery of the pixel electrodes and forming protrusions on the insulating films as mask supporting layers.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2879

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879

K. G. Guharay
KARABI GUHARAY
PRIMARY EXAMINER